

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A lithium secondary battery separator formed by a microporous composite membrane comprising a microporous polyolefin-polyethylene membrane and a polypropylene-containing polypropylene coating layer formed on at least one surface of said microporous polyolefin-polyethylene membrane, wherein said polypropylene has a mass-average molecular weight within a range of 5,000-500,000, a racemic diad fraction [r] within a range of 0.16-0.84, and solubility of 0.5 g or more in 100 g of toluene at a temperature of 25°C, wherein 0.1-5 g of said coating layer is formed on one or both surfaces of said microporous polyethylene membrane per 1 m², and wherein said microporous composite membrane has the following properties (1)-(6): (1) an air permeability (converted to the value at 25-μm thickness) of 50-10,000-100-3,000 seconds/100 cc, (2) a porosity of 25-95%, (3) a pin puncture strength of 5,000 mN/25 m or more, (4) a shutdown temperature of 120-140°C, (5) a meltdown temperature of 155°C or higher, and (6) a battery capacity recovery ratio after storing at 80°C for 30 days [(battery capacity after storing/initial battery capacity) x 100] of 70% or more in a lithium secondary battery.

2. (canceled).

3. (currently amended): A method for producing the ~~microporous composite membrane~~ lithium secondary battery separator of claim 1, comprising:

(a) applying a mixed liquid containing said polypropylene and its good solvent to at least one surface of said microporous ~~polyolefin-polyethylene~~ membrane, removing said good solvent to increase the concentration of said polypropylene, thereby providing the resultant coating layer with a structure in which said polypropylene phase is separated from said good solvent phase, and then removing the remainder of said good solvent;

(b) applying said mixed liquid to at least one surface of said microporous ~~polyolefin-polyethylene~~ membrane, cooling the resultant coating layer to provide the coating layer with a structure in which said polypropylene phase is separated from said good solvent phase, and removing said good solvent;

(c) applying said mixed liquid to at least one surface of said microporous ~~polyolefin-polyethylene~~ membrane, bringing the resultant coating layer into contact with poor solvent for said polypropylene, selectively evaporating said good solvent to provide said coating layer with a structure in which said polypropylene phase is separated from said poor solvent phase, and then removing said poor solvent; or

(d) applying a mixed liquid containing said polypropylene, said good solvent and said poor solvent to at least one surface of said microporous ~~polyolefin-polyethylene~~ membrane, selectively removing said good solvent to provide the resultant coating layer with a structure in which said polypropylene phase is separated from said poor solvent phase, and then removing said poor solvent.

4. (canceled).

5. (currently amended): A battery comprising ~~a battery separator formed by the microporous composite membrane~~ the lithium secondary battery separator of claim 1.